

ASTP (USSR) PRESS CONFERENCE SR96/1

Time: 09:39 CDT, 74:19 GET

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KIO This is the (Garble) Soviet Mission Control Center. Moscow time is 19:48. Eight minutes ago AOS was ended with the Soyuz spacecraft. The communications session included radio conversations between the crew and the MCC and TV coverage. In the TV coverage Valeriy Kubasov discussed the space food, according to the menu of the lunch which they ate at that time. Besides that we transmitted telemetry data on the onboard systems status and bio-telemetry while carrying out medical checks. According to telemetry data onboard systems are functioning normally. There are no comments in relation to the crew's health. Besides that, during that session several trajectory measurements were made to calculate projected parameters for the following orbits. And finally we received commands on the command radio link. The program of the communications session was carried out in full. Mission Control Center, Moscow.

CC-M ... the biological experiments Zone-Forming Fungi was carried out. At that time astronaut Brand familiarized himself with the systems of the orbital module of the spacecraft Soyuz 19. After that Valeriy Kubasov and Vance Brand went into the descent vehicle. Coverage of this event was carried out with the comments of flight engineer Valeriy Kubasov, transmitted by television. From 15:00 until 15:20 Moscow time Astronaut Brand exercised with the Expander in the Soyuz 19 spacecraft. At that time, while the spacecraft were flying over the territory of the Soviet Union, Commander Alexey Leonov and flight engineer Valeriy Kubasov, in an 8 minute report, talked about the Soviet Union. The coverage was in the English language. Therefore, I would like to request that today's briefing would be carried out by Sergei Tsibin, shift flight director. If it corresponds in fact with his third shift (garble).

CC-M Today's briefing will be conducted by Sergei Tsibin, who is the head of the third shift. (English)

TSIBIN (I heard this morning's briefing in detail. There were very many questions asked, a very detailed briefing. Therefore I shall not take up too much of your time today. So I'll just say a few words about last night's activities and today's. Yesterday our crew went to bed, retired, about an hour later than scheduled but they got up a bit earlier than was supposed to be. At 9:50 this morning we heard their voices and we understood they were up and about. And judging by their energetic voices they felt well and were ready to continue with the program. Yesterday's day was characteristic of such important events as the docking itself and the historical crew transfer. Today we assess the day as an ordinary day according to schedule on the international orbit. And that's the way it is because today was very - the day was very tight, there were many experiments, there was photography, cinephotography and there were - there was photography by TV camera from the Apollo with Soviet cameras from the Soyuz with American cameras. The first television program from the Soyuz took place this morning at 11:30 Moscow time. We saw them sitting at the table during their breakfast. And this program that we saw televised was planned according to schedule to show on TV screens approximately by the end of breakfast time. After breakfast engineer Kubasov continued with his experiments with fungi. And then after the ship enter the zone of vision of Sov - Soviet tracking zone the second crew transfer started. Don Slayton transferred to the Soyuz module. And Alexey Leonov went over to the Apollo ship. During these crew transfers they carried out their normal schedules of various experiments and so on. You saw most of it on TV so I won't go into detail on their activities. Kubasov and Brand carried out their schedule of cine and photography and also experiments and so on. Right now the third crew transfer is

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taking place. During this transfer Leonov will return to the Soyuz, and Thomas Stafford will follow him. Kubasov will go the Apollo. The hosts will be Slayton and Brand. The joint press conference will be transmitted through the American AT-6 sputnik. AT-6 sputnik. The conference will take place - will last for approximately 30 minutes. During the press conference we will hear statements made by the ship commanders. Stafford will speak in Russian, Leonov in English. And then the corresponding communications operators from Houston and from the Soviet centers will transmit the questions to the crew. After the press conference there will be experiments on microbe exchange and at approximately 22:15 the last crew transfer will take place. And on our screens we shall see how the crews say good-bye to each other, how they batten down the hatches and how the joint work will end. That's what was done today and what remains to be done. There - Practically there have been absolutely no difficulty on either of the modules today. The crews are all functioning well, coordinated, strictly on schedule. Now if you have questions please.)

SPEAKER I have a question, I need the microphone.

QUERY (The questions posed by the Nipsheva correspondent from Hungary. First question, when Kubasov was in the Apollo, did he eat the Soviet astronaut - cosmonaut's food or the American astronaut's food? Second question, is the conference going to be held in both ships simultaneously, will they be answered from both ships or in one ship? And my third question, who handled the welding furnace on the Soyuz today?)

TSIBIN (The crews, when they visit each other's ships, eat their own food because the Apollo is equipped with Soviet food and the Soyuz is equipped American food. The conference will be held simultaneously from both Mission Control Centers and from both modules. For this there will be a special system of communications. And all 5 of the crewmembers and the two communications operators on Mission Controls will be joined together. And all will hear each other, the operators and all the crewmembers. The experiment with the Universal Furnace started yesterday, at the end of the first period of joint operations. The installation itself is in the docking module of Apollo. And the samples were inserted by Valeriy Kubasov. There was a slight difficulty yesterday with a cooling of the Universal Furnace. And last night we thought that we would have to wait from the third to the fourth period to transfer these samples from the Apollo to the Soyuz. However we are highly satisfied to hear here and in Houston that everything is going on schedule. Next question please.)

QUERY (Does this mean - The Polish Correspondent asked, does mean that the system of helium cooling the furnace is not effective?)

TSIBIN (There was slight concern over this but now we've learned that everything is normal.)

QUERY The France Press Agency asks during the press conference, judging by the time limits, the ships will travel approximately one-third of their orbits. Could you tell us exactly where this will be?

TSIBIN (The press conference approximately over the Mediterranean and as the orbit ascends it will end somewhere near the equator.)

QUERY (Chicago Tribune Correspondent) I wonder if you could tell us the status of the backup Soyuz at this time and does it still have any role in the Apollo Soyuz mission and will it be used in the future or in the next few days? (English)

TSIBIN (This question was already asked. I will repeat my answer. The backup ship is ready and at the Baikonur Cosmodrome, the backup crew was there until yesterday. As for as future programs that will be determined by the cosmonaut center. They are the specialists and they have all the facilities.)

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QUERY (The Soviet correspondents would like to know why the simplex communications systems interferes with the v - VHF communications.)

TSIBIN (Both ships as you know, the Soyuz and the Apollo have several communications lines. One, for instance, is the ship-to-ground, the other is ship-to-ship. During the joint training that we carried out in March, May and June of this year, we focused a great deal of attention on the communications, ship-to-ship and ship-to-ground. We have certain difficulties because we have two modes of work on the Soyuz ship. One mode without splitting the communications channel and one splitting the communications channel. In the mode without splitting the crew can hear any of the communications centers or transmitting centers. The second mode splitting the communications channels is meant to prevent any interference ship-to-ship and ship-to-ground. In this mode the commander of the Soyuz carries on ship-to-ship communications while the engineer, without interfering with the commander, can continue his communications ship-to-ground. During the training period we learn to use these two modes and today we have no particular problem.)

QUERY The Humanité correspondent would like to know after this test project is completed, how will the information concerning the project be transmitted or conveyed to the third world countries? In what volume and in what form? Third countries. Ah, sorry, third countries.)

TSIBIN (Each of the experiments will be set down in voluminous records. That has been agreed upon earlier, and these records will be made available to third countries. Prior to the start of the experiment a detailed schedule was drawn up for these reports. And I think that in one of the following briefing periods when some of our scientists will be here who handle some of these experiments they will tell you in greater detail more of what you are interested in.)

QUERY (Did the Soviet commander Leonov take any pens and pencils with him on this trip and does he plan to make any drawings there. Will he have time for this?)

TSIBIN (He has everything needed. He has pen and paper and pencils and everything, but the problem is that this morning for instance when we started our communications with him we interrupted their breakfast. We excused ourselves. Said we were very sorry for bothering them and Leonov said that's nothing, work is work, let's continue even though you interrupted breakfast.) Next.

QUERY (Transpress would like to know, is it possible to take a preliminary look at the questions which we will be asked at this evening's press conference?)

TSIBIN (The questions were coordinated with the Houston Center. They are formed in groups - to groups of cosmonauts, but the questions will not be released before the press conference. The questions are sort of summarized in order to save time. You remember that each side has only 11 minutes. Therefore we have asked questions from groups, and we will not name either the newspaper or the correspondent. Houston will do the same.) Next.

TSIBIN (If there are no further questions then we invite you to return here about 8:25 for the press conference with the crew, thank you.)

MCC-M (This is the Moscow Press Center.)

END OF TAPE

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KIO This is the Soviet Mission Control Center. In a minute the spacecraft will enter the coverage zone of the Soviet tracking stations Eupatoria, Tbilisi and Djusaly. The Soyuz spacecraft will be in this coverage zone from 18:58 to 19:39.

MCC-M Soyuz, this is Moscow.

USSR I am listening.

MCC-M Our communication session will end at 19:24, and don't forget that, according to ASTP 40301, the communication check will begin for the press conference with the Houston Mission Control Center and the visiting specialists as further scheduled.

USSR How many communication checks will occur at 19:24?

MCC-M Comm checks at 19:24?

USSR Yes, yes.

MCC-M The first one will be at 19:24. The second one will occur at 20:18.

MCC-M Very well.

USSR Okay. (English)

ACDR Hello, Bob. How's it going? (English)

CC-H Well, Tom, well.

CC-M (Deke, DMP, this is Moscow. How do you read?)

DMP (Garble)

CC-M (Well, Deke, I also read you well.)

CC-M Soyuz 2, Soyuz 2, Moscow. How do you hear us? Over.

CC-M Soyuz 2, Moscow. How do you hear us? Over.

USA Let's see. (English) We are ready to perform pressure dump in tunnel 2.

USSR Just a moment, just a moment. (English)

CC-H Apollo, Houston. There's less than a minute until LOS.

AOS will be at 76:13 which is in about 2 minutes. (English)

USA Okay. (English)

USA I understood, Bo. I understood.

USSR (Garble) number 4 is closed. Ready for tunnel 2 depressurization. (English)

CC-M (Soyuz, this is Moscow. Soyuz, this is Moscow.

USSR Go ahead, Moscow.

CC-M I hear you very well. The second communication check with the Houston MCC and USSR visiting specialists will be at 20:18 Moscow time. How did you receive us? Over.

CC-M Soyuz, this is Moscow. How did you receive us? Over.

CC-M Soyuz, Soyuz, this is Moscow. How did you receive us? The second comm check will be at 20:18.

SCDR Do you hear? Over.

CC-M Soyuz 1, I hear you well. The second comm check will occur at 20:18. Over.

CC-M I have already given you the acknowledgment several times.

The second comm check is at 20:18. Over.

USSR You just came through now. We did not hear you up to now. Over.

SCDR And did you hear Soyuz 2?

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CC-M No. Over.
USA I am beginning the hatch 3 and 4 pressure integrity check.
USSR O.K.
USSR Moscow, this is Soyuz. How do you hear me?
CC-M Very well, Soyuz. This is Moscow. How do you hear me?
Over.
SCDR You did not hear Soyuz 2?
CC-M No, we didn't.
USSR They won't have any communication because I had no AOS
with that station.
CC-M Roger.
USSR I could not send the commentary because for some reason
it does not work there.
CC-M Roger.
CC-M That's why I am asking you, Soyuz? Do you hear me?
SFE No, I don't. But if the signal is getting to you, then it
should come to us, too. Over.
CC-M I hear it very, very weakly.
SFE Roger.
CC-M Soyuz, this is Moscow. Please, don't forget to turn off
VHF/AM after work, when necessary.
SFE Okay, I know. I heard you.
CC-H Apollo, Houston. There are just a few seconds until LOS.
We'll see you at Quito at 76:44. (English)
USA Roger, 76:44 at Quito. (English)

END OF TAPE

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MCC-M Soyuz, this is Moscow. Soyuz, this is Moscow. How do you
read? Over.
MCC-M Soyuz, Soyuz, this is Moscow on the line. Over.
SCDR Moscow, this is Soyuz. I hear you excellently. How do
you read me?
MCC-M I hear you excellently. And you didn't hear me before?
SCDR No, I didn't.
MCC-M Roger. Soyuz 2, this is Moscow. How do you read?
SFE Moscow. This is Soyuz 2. I read you well. How do you
read me?
MCC-M Perfectly. I read you perfectly.
SFE Roger.
CT-M (Apollo commander, this is Moscow. How do you read?)
ACDR Roger, Bob. Read you loud and clear. How me? (English)
CT-M Roger, Tom. Read you loud and clear. Command module pilot,
this is Moscow. How do you read? (English)
CMP Loud and clear, Bob. How do you read? (English)
CT-M Roger, Vance. Loud and clear. Docking module pilot, this
is Moscow. How do you read? Va - Deke? (English)
DMP I read you 5 by 5, Bob. (English)
CT-M Roger, Deke. Read you loud and clear. Good comm checks,
all three. (English)
USA Okay. (English)
CT-H Okay.
CT-H Okay, Bo, we've had good comm check with Moscow, we're ready
for one of you guys again. (English)
CC-H Roger. We still have a few minutes left until the conference
and we'd just like to get this TV adjusted at this time. (English)
ACDR Okay, tell me what you want with it. I got it set for where
I thought it was supposed to be. (English)
CC-H Roger. We just lost it on the eidophore. Hold on one
please. (English)
CC-H Deke, we've asked you to take those cue cards down. They
cause the picture to bloom. (English).
DMP (Garble)? (English)
MCC-M Soyuz-1, this is Moscow.
SCDR On the line.
MCC-M Write this down, please. To carry out TV11-3 on the 54th
orbit ...
USA What do you got there now? (English)
MCC-M ... connect TV camera 1.
SCDR I didn't understand you. Repeat that, please.
MCC-M In order to do TV11-3, TV11-3 on the 54th orbit ...
USA (Garble) Bo? (English)
MCC-M ... connect TV camera 1, USA 347/10-1, USA 347/10. How ...
SCDR (Garble) please repeat the numbers of those connectors.
MCC-M 347/10-1, USA 347/10, connect.
USA What do you got there now, Bo? (English)

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SCDR Johnnie, take your time. Here comes a big charge. I can't connect the camera to the cables.

CC-H ... you take the camera (garble) down somewhat, it'll be better (garble). (English)

MCC-M Whenever.

SCDR TV camera 1 is connected.

CC-H A little more. (English)

MCC-M USA 347/10-1.

CC-H Another (garble). (English)

MCC-M USA 347 ...

SCDR USA 347/10-1.

USSR ... and USA 347/10.

SCDR In order to conduct TV11-3 on the 54th orbit ...

CC-H Apollo, Houston. We'd like (garble). (English)

SCDR ... connect TV camera 1, USA 347/10-1 and USA 347/10.

MCC-M You received correctly.

MS-USA Okay, how's that? (English)

MCC-M This is after this communication session.

CC-H Camera's pretty good. Just a second while we will let the camera settle. (English)

USA Well, that extraneous communication is one of the places there too right now. (English)

CC-H Apollo, Houston. There is a bright spot on your right.

If there is a window, would you please keep the shade on it? (English)

CC-H And Deke, while you're close here to the camera, we'd like it to be zoomed in just a bit more. (English)

DMP We're getting a lot of echoes there, Bo. Could you give me that last one again? (English)

CC-H Roger. While you are in that position, we would like to - you to zoom in a bit more. (English)

CC-H Just a little more, if you can. (English)

USA That looks good, Deke. (English)

DMP Okay. Now if we could get unsnarled up here, we'll be in great shape. (English)

CC-H Moscow, this is Houston. We have finished our check. Everything is okay.

CC-M Roger, Houston. Read you loud and clear. (English)

CC-H Apollo commander in Soyuz, we're going to start our press conference now, and we'd like to ask you, sir, to begin with a statement if you would. (English)

PRESS CONFERENCE

ACDR Thank you, Houston. I'd like to say a couple of words here. It has been most rewarding today here in space working with the Apollo-Soyuz project. The success of the mission that both United States and the Soviet Union and the rest of the world has seen is a result of the determination, the cooperation and the efforts by the governments of the two countries, by the managers, engineers, and all the workers involved. It's been a very rewarding experience. Yesterday when I first opened the hatch and said hello to Valeriy and Alexey, I had a couple of thoughts, however, due to communications, we could

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not con - talk to them directly. The thoughts were that when we opened this hatch in space, we were opening back on the Earth a new era in the history of man. I would have said (In Russian) "I am opening this hatch in space, we are opening on Earth a new era in the history of man." Now, how this new era will go depends on the determination, the commitments, and the faith of both the peoples of both countries and of the world. I'm sure that it will work out in the future for good. Again, it's been a real pleasure to be on a mission and work with the cosmonauts. I'll turn it over to Alexey. (English)

SCDR These representatives of two countries are conducting the joint Soviet American flight because our peoples and our governments want to work together in spirit of cooperation, because a lot of citizens in America and in the Soviet Union did a great job to make this flight possible. This work became possible in the climate of detente and (garble) copulation between our countries. This flight is an important step on endless road of space exploration flight, joint effort of all mankind. (English)

ACDR Okay, Bo. We're back to you. (English)

CC-H Roger. It's Moscow's turn to ask the questions that have been proposed by the press there. (English)

CC-M Thank you, Bo. (English)

CC-M Soyuz, this is Moscow. Here are some questions. The first question is for the flight engineer of the Soyuz, Valeriy Kubasov. You were the first to weld in space. Do you foresee a second orbiting station, created by the efforts of all interested countries on the principle of equal profit for all countries?

USA Go ahead. (English)

CC-M (Garble) picture (garble).

SFE Yes, we have ...

CC-M Good picture.

SFE You have a picture. Roger. Actually, during the Soyuz 6 flight I had the opportunity to conduct the first welding in space. Today and yesterday we took part in the Multi-Purpose Furnace experiments. Both experiments are based on the sphere of space metallurgy. I think that this field has a great future and it seems that the time will come when mankind will have many new metals, many new alloys with new qualities which can't be obtained through conditions which exist on Earth but can be achieved only in space itself. And it seems to me that the time will come when cosmic space will appear to be an entire, let us say, factory for the production of new materials and new substances with new qualities which can only be obtained in space.

CC-M Thank you, Valeriy.

CC-H The second question from the Soviet press center is for Deke Slayton. Do you read? (English)

DMP Yeah, go ahead. (English)

CC-H Deke, you flew over Europe during the war. How does this continent look to you from outer space now? Over. (English)

DMP (Garble) beautiful from up here, I'll tell you that. Unfortunately, I've had no time to look at it, particularly over the continent of Europe. We've been very busy; for the next few days we hope to do more of that, but the little of what we've seen is downright beautiful. I just wish everybody down there could have the opportunity to come up and see it themselves. (English)

CC-H Thank you very much, Deke. The third question from Soviet press center is for Vance Brand. Vance, for three days now you have not heard any news. What kind of news would you like to hear from us journalists? Over. (English)

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CMP Naturally, I'd like to hear good news instead of bad news. For example, it would be nice to hear that everything is more peaceful in many areas of the world, that the world is truly coming together as - right at this moment, as we really believe it is, over a course of several years. We think since the program started that the world has been getting smaller and we would like to see at the same time good news result from that, in a political and international sense throughout the world. (English)

CC-H Thank you, Vance. (English)

CC-M Here is a question for the Soyuz commander, Alexey Leonov. Where in your own homeland do you want to plan the tree seeds intended to be exchanged between you?

SCDR I was born in Siberia and grew up there, therefore, in my mind the most beautiful trees, the most long lasting, and the most adaptable are the pine and fir. These trees constitute the great bulk, a green mass of our terrestrial globe, and will do the greatest amount of good for mankind. Therefore I certainly think it would be necessary to plant pines and firs.

CC-M Thank you. The next question is for Valeriy Kubasov. You have children. What would you wish for them, as well as for all the children in the world, in space?

SFE For all children, of course, I would wish happiness, that the future be good and peaceful, they should live in joy with their parents and shouldn't lose their brothers and fathers as was the case during the last war. I want to wish all the children who are living on the Earth, most of them go to school and are on vacation now; I want to wish them good air, and they should store up their energy to return to their studies in school. I have finished my answer.

CC-M Thank you.

CC-H The next question is for Tom Stafford. Tom, taking into consideration the - existings world problems, in your opinion, are the expenses connected with the space flight justified? Over. (English)

ACDR I understand completely the question. It has been asked many times. Certainly, reviewing the data, we think that - in fact we know the cost is justified. Number 1, the scientific effort that we have put out to number 2, the great benefits that are going to be derived from this - from both countries - in fact the total efforts, the total benefits that will be derived in the end, will far outshadow the cost that have been spent upon it. Over. (English)

CC-M Yet another question for Alexey Leonov. Could you convey to the ground a rough sketch which expresses the significance of the joint mission of your spacecraft in space?

SCDR But this - it's kind of hard to do it that fast, but I can transmit this sketch. This sketch was done some time ago.

CC-M Excellent. Thank you.

SCDR To tell the truth, I have already drawn many pictures here. For example, here is Tom Stafford; is there a likeness?

CC-M Very well done.

SCDR That's thoughtful of you. Right now I am showing him as quite young. In this here he is younger.

CC-M An exclusive.

SCDR Yes. And yet one more person. This is our friend, Deke Slayton. But Vance Brands's portrait I will show as soon as we take the camera to the Soyuz - that is my entire gallery of portraits in space.

CC-M Thank you, Alexey.

CC-M Bo. Thank you. Go ahead. (English)

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CC-H Thank you.

CC-H The first question is for Tom Stafford. How do you evaluate the operation of the Soyuz crew during the first phase of the flight? (English)

ACDR Well, my evaluation of the Soviet crews during the first phase of the flight has been very good. As you know these are a lot of long and complicated and very tedious procedures that we've had to go through in these transfers, a lot of interfacing and it's taking a long time to work out. Things have gone very well. Yesterday we ran a little longer than we expected but again, they had a lot of extra food for us to eat and also the calls from the head of the Soviet Union and the President of the United States delayed us a little bit. Overall, the cooperation has been outstanding and their procedures have been wonderful. Over. (English)

CC-M The second question is for Valeriy Kubasov. What kind of contribution do you feel the experience you accumulated in the course of this flight will make to the future cooperation of the USA and the USSR in space, that is, which of the new things you have learned in the last couple of days might be useful for the cosmonauts and astronauts in the future?

SFE Well, to begin with, we have learned from our own experience that we can cooperate and fly in space together. While prior to this, we had been just preparing, now we've given it a practical test. Yesterday and today have proven to us that during our meeting in space, during the rendezvous, docking, and during the joint activities, during mutual visits, we had no problems, we had a complete understanding and we did everything that had been planned, and this is the most important thing, it has proven that we can cooperate in space, fly together. And then we made sure that the docking assembly is working, working as planned, which means that the technical ideas and decisions associated with it have been confirmed. This was proven yesterday for the first time. Well, and third, of course, is that we've gained some additional experience in flying two spacecraft simultaneously. This will also be very helpful in terms of preparation for future flights.

CC-M (The next question is for Vance Brand. But before we ask that, we ask that Valeriy Kubasov may move a little to his left and forward so we can see him better. The question for Vance is the same as the one that Valeriy answered. How might your experiences on this mission contribute to future cooperation in space between the USSR and the USA? That is, did you learn anything in the last few days that would help future astronauts and cosmonauts?)

CMP I think the greatest part of our learning, Bo, has been in our training which preceded this flight, and all things considered, I think there is where we learned how to communicate, how to plan our training - plan the various aspects of this flight. Upon getting up here in space we did run into surprises, but only minor surprises as a result of our training. I think I've learned a lot. I think, of course, if we had another flight someday that I find it much easier to approach and if somebody else was on this flight, I'd have a lot of suggestions for them. And I'd certainly recommend such a thing, incidentally. (English)

CC-H Thank you. (English)

CC-M The third question goes for Alexey Leonov. How comfortable do you think Apollo is, and how do you like American food?

SCDR I've spent 6 hours aboard Apollo in space. Prior to that I had been aboard that spacecraft a lot of times during simulations. And I, as a pilot and a cosmonaut, really like this spacecraft. I like the way it's engineered, its maneuverability, its capabilities. Well, Apollo has already demonstrated what it is worth. It's quite a dependable vehicle that makes

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possible to solve various problems, including the most difficult problem of getting to and from the Moon. I've seen it in real flight today; I like its observation capabilities - it has a sufficient number of windows for Earth observation and a lot of hardware. I have yet to finish my commentary on the USA space food today, but it couldn't be transmitted for there was no communication. I can say that the food I had chosen back on the ground was very much the same here and I liked it very much. I liked the way it was cooked, its freshness and the crew's attention. But I want to emphasize once again that space food is definitely not the food people eat on the ground but ... As old philosopher says, the best part of a good dinner is not what you eat but with whom you eat. Today I have dinner together with my very good friends, Tom Stafford and Deke Slayton, because it was best part of my dinner. (English)

CC-H Thank you very much. (English)

CC-M Thank you, Alexey.

CC-H The next question is for Deke Slayton. Now that you have finally made it into space, how do your experiences compare with all the stories the other astronauts have been telling you for year? (English)

DMP Well, I'm afraid I haven't discovered anything new. It's been pretty much the same. We've had the same kind of problems up here that (garble), I guess. Not enough space, the conditions (garble), difficulty in keeping up with things. Just a lot slower getting things done up here than we realize when you're down there in l-g. Everything takes a little longer. In some respects its easier because weighty things are easier to move around. But, on the other hand, everything just tends to take off as you let go it. So, - but it's been a great experience. I don't think there is anyway anybody can express how beautiful it is up here. I've listened to it for 13 or 14 years now and I still didn't believe it till I got here myself. And, I don't think there's any way that any of us can express it properly. As I said earlier, I surely wish it was possible for a whole lot more people down there to come on up here. Because, I think it makes for a lot better world. (English)

CC-H Thank you, Deke. (English)

CC-M The next question is for Alexey Leonov. What kind of future space flights would you like to participate in?

SCDR I am pretty sure, that all of us, those who fly spacecraft and those who don't but just watch and listen, are the participants of just the beginning of man's long road to space. And the future flights will vary a lot. I would naturally like to be in a spacecraft that could circle the Earth for a long time, so that I could see, with the eyes of an artist, the diversified appearance of our Earth, its different colors, keep them in my memory and convey to the people. And well, I'd like to fly at greater altitudes than we're flying now. The Earth looks quite different from there. I think that we are at the beginning of the road, and we have a long way to go in terms of energy and age, and we'll take part in future space flights.

CC-H The next question is for General Stafford. It is the same as the one Colonel Leonov just answered. What kind of mission would you two like to fly in space yourself? (English)

ACDR Well, you're talking about the next mission. I would think, naturally, the background and flight tests that you'd always like to fly a new and a better and a more modern device. And, we have one coming along called the Shuttle. I would certainly like to fly that. And I would hope that Alexey would have a vehicle developed by their country that we could fly, maybe in a joint mission. That would be my wish, since man's progress has always been a geometric progress. The benefits derived from science, from technology,

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has always helped all of mankind. I would hope that the next mission, (garble) if I do fly one, would be one of the more modern types of vehicle that could have more benefits for everybody. (English)

USSR I agree with Tom and want to add that the spacecraft is one thing and who you fly with is still another. So I'd always like to fly with friends whom I trust and who trust me, and with whom work is fun.

CC-H The next question is also for General Stafford. From a practical standpoint, did you find talking to each other in the listener's native tongue a desirable way to communicate during the complicated rendezvous and docking maneuvers? (English)

ACDR It is certainly very important (Russian) I say, or course, it was necessary. Again, we developed this technique out of working together over a period of nearly a year, that was over a year and a half ago, that we determined that if we would listen to the other person speak in your own tongue the individual would speak slower, also more distinctly and would make fewer mistakes. And, so, it worked out beautiful as you saw in the rendezvous, and the end result you saw on television and what you see now. It has also been a great experience for us as far as a way of communicating with each other. Over. (English)

CC-M And the last question for Alexey Leonov. How important for future flights, do you think, is the crew rescue capability demonstrated in this flight?

SCDR When we began the Apollo Soyuz program, the emphasis was placed on developing rescue capability, developing the joint androgynous peripheral docking unit and its testing. And now we can say that the main part of this program has been completed; we have tested these docking units; they function well and keep us tightly together. This is a beginning of an important work in unifying the future space systems, not only those of our nations, I think this will be followed by all our and USA spacecraft equipped with such docking assemblies, but maybe other countries developing in that direction, should design compatible docking units in order to take advantage of every opportunity of helping one another in space. And we are glad, that this great, tremendous space work has been started by our crews, the crews of the Apollo and Soyuz.

CC-M Thank you very much.

CC-H The next question is for Vance Brand. Now that Americans have met Russians in space on an international venture for the first time, what do you think the chances are for a joint manned exploration of a planet? (English)

CMP Well, I - I think frankly that the chances are very good. But, I don't think it will happen right away. They say that . . . (English)

END OF TAPE

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CC-H ... ation of a planet. (English)

CMP Well, I - I think frankly that the chances are very good, but I don't think it will happen right away. They say that, well, it would probably take at least 20 or 30 years before we would be ready as a world to go off and explore a planet. I think that's probably reasonable. The only thing in everything else that we've done, in aviation for example, we found that progress is always much faster than we expected. So perhaps the time will come when we will be thinking of exploring planets, probably together, within the next 20 years. I think that would be the way to do it. I think it would save us time, effort, money, it would pool resources, it would - in other words it would be interesting and it would bring ben - bring back benefits to the whole world. (English)

CC-H Thank you, Vance. The last question is for General Stafford and it's the same as Colonel Leonov just answered, and that is, how important do you think the rescue capability demonstrated on this flight will be in future missions? (English)

ACDR (Well, when - as long as you have motion, you're going to have accidents. Needless to say that we did all our utmost in our efforts to minimize all the risks. However, after a long period of time, you could conceivably and possibly have some mishap that would require a rescue. The total system we have demonstrated here in the new docking device, the rendezvous system using techniques from both countries, communications procedures and techniques, could be available in the future if required. However this (garble) but it could be available, so I think we have taken a great step, that indeed we have opened a new era in the history of man on this, and it will be beneficial. Over. (English)

CC-H Roger, Tom. Thank you. That was the last question. I'll now bring the press conference to a close and you gentlemen can get back and continue with your work. (English)

CC-M Press conference is over. Have a good flight.

USA Thank you very much.

USSR Thank you very much. Thank you. (English)

SFE ... Valeriy. Can read me? (English)

USA Loud and clear. Thank you. (English)

SFE Okay. (English)

END OF TAPE

ASTP (USSR) MISSION SR100/1
Time: 13:36 CDT, 78:16 GET
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KIO This is the Soviet Mission Control Center. Moscow time is 21:36. The docked Soyuz and Apollo spacecraft are continuing their orbital flight around the Earth. A press conference terminated a while ago. It was transmitted through the ATS-6 communication satellite and was televised. The spacecraft have just crossed the equator and the Soyuz is carrying out its 54th orbit. In a minute and a half the spacecraft will have AOS over the Soviet tracking ship Academician Sergei Korolev and will continue the orbital flight. Mission Control Center, Moscow.

MCC-M Soyuz, Moscow. Soyuz, Soyuz, Moscow is on the line. Soyuz, Soyuz, Moscow is on the line. Soyuz, Soyuz, Moscow. How do you read me on this line? Over. Soyuz, Moscow. Soyuz, Soyuz, Moscow is on the line. Soyuz, Soyuz, Moscow. How do you read me on this line? Soyuz, Soyuz, Moscow is on the line. Soyuz, Soyuz, Moscow. Soyuz, Moscow. Soyuz, Moscow. Soyuz, Moscow.

SCDR Moscow, Soyuz. How do you read?

MCC-M Soyuz, Moscow. Read you very well. Soyuz, I have a message for you. Please write it down.

SCDR Moscow, Soyuz. We've got interference all over the place. I didn't get you.

MCC-M Soyuz, Moscow. Write down a message: 21:47 through 21:55, AOS over KYG. You'll have AOS over KYG in 2 minutes.

SCDR Twenty ... Yes, in a minute.

MCC-M Yes, AOS over KYG in 2 minutes. We'll send you a message.

SCDR Okay, go on.

MCC-M You'll have LOS over ASK now. See you over KYG in 2 minutes.

SCDR Okay. I'm going to the OM.

SCDR Moscow.

MCC-M Soyuz, Moscow. Soyuz, Moscow. Soyuz 1, Soyuz, Moscow.

SCDR Moscow, Soyuz is on the line.

MCC-M Write the message down. Are you ready?

SCDR Ready, ready.

MCC-M You should strictly follow the recommendations on communication.

First ...

SCDR We should what?

MCC-M Strictly follow the recommendations on communication. First, before AOS over Soviet stations, you should by all means activate the VHF duplex receiver. Secondly, with VHF/FM and VHF/AM on, depress to push-to-talk button only when you transmit. Third, don't keep the push-to-talk button fixed. Fourth, don't forget to turn VHF/AM off. And fifth, while working in the OM, don't connect headsets to the connectors COMM 2 and COMM 3 simultaneously. You can connect them to COMM 1 and COMM 2 or to COMM 1 and COMM 3. How did you copy?

SCDR I copy you. It would be a nice thing to put this ideologist here, for him to know what's what.

MCC-M Roger. And in addition, we did not have the last TV session, so please check.

SCDR I didn't get that, didn't get that. Please, come again, Volodya.

MCC-M We didn't have the last TV session during the press conference.

SCDR Okay.

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MCC-M Well, check TK-1 connection on the cable USA 347/10-1, on the cable. Is USA 347/40 connected on the console?
SCDR Yes, I repeat USA 347/10, it's female. I connected it to USA 347/10-1, which is male.
MCC-M Cable.
SCDR Is that it?
MCC-M That's it. TK-1
SCDR Okay, Roger.
MCC-M And ask Soyuz 2 whether a light was lit on TK-3 during the press conference over our coverage zone.
SCDR You want me to ask Valeriy?
MCC-M Yes, yes.
SCDR Just a second. (English)
Valeriy? Listen, was a light lit on TK-3 during the press conference? It was lit? Moscow, Soyuz. How do you read me?
MCC-M Read you very well.
SCDR He advised me that the light had not been lit.
MCC-M Roger. Soyuz 1, I got another question for you. Did you reconnect those connectors? Or they were just like that?
SCDR No, it was connected. 347/10.
MCC-M 347/10-1 on the cable? It was connected to the console 347 and just 10?
SCDR No, the connector 347/10 was connected to the connector (garble).
MCC-M Roger. So that means TK-3 is connected.
SCDR That's right. And now I have connected the connector of TK-1 to this connector of TK-1 to this connector, 347/10.
MCC-M That's correct. 347/10-1 on the cable.
SCDR That's it.
MCC-M Soyuz 1, ask Soyuz 2 whether the cable was connected to the USSR J-Box in the DM.
MS (Garble) on the US-J-Box (garble)
SCDR Moscow, Soyuz. How do you read me?
MCC-M Read you very well.
SCDR When I came here I connected our (garble).
MCC-M Roger, connected. Soyuz, Moscow. Soyuz, Moscow. Put TK-1 on T-1.
SCDR We can't hear you any more. End of transmission.

END OF TAPE

ASTP (USSR) MISSION SR101/1
Time: 14:05 CDT, 78:45 GET
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SCDR Valeriy is now in the Apollo spacecraft with Vance Brand and Deke Slayton. Our joint operation are coming to a close. We are finishing our third transfer. And now we will have our fourth and final. As our final operations, Tom Stafford just received from me the tree seeds in the red box, which contains the seeds of a fast-growing pine tree, for (growth) in the USA. Under proper climatic conditions they should experience (normal) growth in our country. Final operations: In space we have joined the medallions. We took one half of the medallion from the Apollo spacecraft and the second half from the Soyuz spacecraft, and now we are here in orbit joining these two halves. The medallion, the emblem of our flight, the docked ships Apollo and Soyuz, the two halves forming side by side flags, the flag of the USSR, and the flag of the USA. I am handing this medallion to Tom Stafford. Valeriy Kubasov is proceeding to bring from the Apollo spacecraft the second medallion which we brought from the Soviet Union.

MCC-M A little bit lower there.

MCC-M Lower.

MCC-M Perfect.

SCDR What did we do during that time? That was a very strained time for us. In a short time it was necessary to carry out a great quantity of operations, combined with the transfer, and at the same time Valeriy is taking control of the spacecraft systems, establishment of communications. And this all required a minute-by-minute monitoring. And in light of all this it was necessary to carry out maximum movie, still and TV-coverage. In general we now understand that four or five people onboard the Soyuz and Apollo spacecrafts are too few. They should have included more crewmembers, then we would have been able to do all we undertook to do, on time.

MCC-M Excellent report, thank you.

MCC-M Excellent video quality.

USSR The video is ended, isn't it?

MCC-M Yes, it's already through.

USSR The quality was all right then?

MCC-M Yes, very good. Your report is quite suitable, thank you.

USSR I will turn off everything here, so nothing should interfere with you.

MCC-M (Laughter)

MCC-M Soyuz, next communication at 23:20-23:27 (garble).

USSR Received.

MCC-M Soyuz, well, we are viewing you through the Apollo camera. The image is also good. It's directed at you from the bulkhead, on that camera.

USSR Roger.

MCC-M Soyuz, end of AOS, until the next session.

KIO This is the Soviet Mission Control Center. Moscow time is 22:16. The Soyuz spacecraft is completing the 54th orbit flight. The flight of the docked Soyuz and Apollo spacecraft is continuing. According to telemetry data the Soyuz spacecraft has the following atmospheric parameters. These data are at this moment being updated, and will be reported later. According to telemetry

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information received, and by crew reports, the condition of the crew's health is excellent. At the present time the spacecraft have left the coverage zone of the Tbilisi tracking station. And they are located in the coverage zone of the ATS-6. Television images will be relayed through this satellite from onboard the docked spacecraft. Now, the spacecraft are over a dark portion of Earth, outside the coverage zone of USSR tracking station. The crews of the American and Soviet spacecraft are preparing to carry out the fourth and final transfer between spacecraft. At this time the following members of the mixed crews were in the Soyuz orbital module: Commander of the American spacecraft Thomas Stafford and the Soyuz Commander Alexey Leonov. Located onboard the Apollo spacecraft are command pilot Vance Brand, engineer of the Soyuz spacecraft Valeriy Kubasov and docking module pilot Donald Slayton. The Soyuz flight engineer and the docking pilot of the USA spacecraft will initiate procedures for the fourth transfer. The Apollo Commander and the Soyuz Commander, located in the orbital module of the Soviet spacecraft, are regulating proper gas composition and are preparing the equipment of the TSB for return to the Apollo spacecraft. After the transfer of the flight engineer and the docking module pilot to Soyuz, the cosmonauts and astronauts will bid farewell to each other, then the Apollo commander with the docking module pilot will return to the docking module of the USA spacecraft. The soviet crew will close hatch 4 which connect the volumes of the tunnel of the joint docking unit, and will monitor the pressure integrity of tunnel 2. The astronauts will return to the command module and further flight of the spacecraft will proceed with their own crews. Mission Control Center, Moscow.

END OF TAPE

ASTP (USSR) MISSION SR102/1
Time: 15:09 CDT, 79:49 GET
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KIO This is the Soviet Mission Control Center. It is 23:09 Moscow time. The Soyuz spacecraft has been in flight 79 hours 49 minutes. At this time, it is docked with the American spacecraft Apollo, it is approaching the coverage zone of the American tracking station Goldstone, and in several minutes a communication session will begin. A constant medical control over the cosmonauts' health status is being conducted during the flight. The control is based on combined intercommunicated medical-biological, biophysical, physical-chemical, biological-technical, telemetric and many other scientific-research fields and activities, which are directed towards creation of optimum conditions for vital activity in space -- and explanation of factors, which can influence a human body in space flight. The first group of factors which characterize space as a peculiar medium for existence: ionizing radiation, meteors, vacuum. The second group is connected with the flight dynamics: weightlessness, acceleration, vibrations, overloadings. The third group deals with prolonged stay in artificial medium, in sealed cabins of small size: isolation, hypodynamia, emotional strain, the peculiarities of a microclimate. - description of experiments and execution of medical control, is based on a series of classical theses of natural science -- Here is one of them - the regulation of relative stability of the internal media of the organism according to conditions of its existence, adaptation of physiological processes to the demands of the whole organism. The internal medium stability is one of the adaptive manifestations, which ensure harmony of vitally important functions of the organism in changed conditions of existence. It is characterized by stability of physiological, biochemical, and other constants, such as the body temperature, osmotic pressure, active blood reaction, metabolic processes, blood sugar concentration, ion composition, arterial pressure and others. The relative stability of the internal medium allows the organism to resist considerable changes in the external medium, and thus to maintain balance between them. The balancing of the organism with the medium is proceeding in a dynamic way and is carried out by continuously released energy, the source of which is metabolism. When the organism functions come into disorder in possible condition of extreme effect, disorders in metabolism energy exchange and in removal of toxic exchange products from the organism may develop. The last is connected with the changes of optimum conditions of vital activity of the cells and tissue. As a result the tissue and cell elements become vulnerable. Their functional progressive growing changes may cause pathology of the whole organism. That is why it is especially important in conditions of extreme effect for prophylaxis to prevent disorders and exhaustion of the neural system and humoral regulating systems that function through the organism fluid. And in the first place of the mechanisms of the higher sections of the central neural system, which balances the organism's vital activity with the environment. The second point - balance between the organism and the external medium - by means of function corticalization, that is due to direct influence of the cerebral cortex on all physiological systems, without exception, with reconstruction of their operation level in the direction, which is necessary for optimum adaptation to the present effects. Under the influence of extreme

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effects compatible with the normal vital activity of the organism, an adaptive reconstruction of functions develops. The reconstruction is regulated by complicated influence of the cerebral cortex, its subcortical structures, as well as by the neuro-endocrine system. The adaption widens a little the borders of the organism existence, causes displacement of the optimum zone and lowers the dependence on external conditions. As a result, a new functional level of vital activity develops. It predetermines new features of the organism reactions both to the immediate extreme effects depending on strength, frequency, duration of interaction, intervals between them, and as well as during the period of function restoration to the initial level afterwards. The last reflects the totality of metabolic and structural changes and acquires the meaning of an important integral index, which helps to judge about the functional status of the regulating systems. The more intimately the function of one or another organ is regulated by the central nervous system higher sections, the faster and more significantly are their changes revealed, and the less time its restoration to the initial level takes. The same functions, which to a considerable extent depend also on humoral mechanisms of regulation and the functions in regulation of which intramoral links of the nervous system take part have comparatively high stability under the same conditions. But if they develop changes, then stability of displacement is characteristic of them, that is they are characterized by prolonged effect, which is characteristic of vegetative disorders developed in separate organs within the total functional system. For instance, under certain conditions of hypoxia effects or cross acceleration, for example, to eight units with duration of 3 minutes, the brain and heart bioelectrical activity restores in several minutes, the stomach glands activity - in several hours, enteric glands activity - judging by ferment change - several weeks. The reactions after effect of different duration for different organs give an idea of the organism function correlation and helps to find out secret effects of strains in the absence of acute reactions and to determine the beginning of the breakage of the organism as a single whole. Under the given conditions of dynamics of cortex processes, relative stability is achieved perhaps both by the protective mechanisms and by subcortical centers of vegetative and neuro-endocrine regulation, which reaches the highest level of strain, often exceeding the normal. The third moment - the only structure and the function of the integral organism under extremal effects. Close intercommunication of all the systems of the organism provide the general response to different effects while its changes are being differentiated by separate systems of organs, and also the presence of a single controlling and connecting system in the live organism provide the general adaptive reconstruction of the whole organism as a response to this effect. The space flight entails a series of transitional periods: there may be periods of function discorrelation, when the autonomy of separate system rises sharply, they become less dependent on the cerebral cortex, but finally the adaptive process is directed towards submission of the particular by the

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general. The higher controlling levels can keep their normal functional ability owing to extreme strain of the lower levels, both functional and structural against the background of quite satisfactory general state of the organism. Mission Control Center, Moscow.

END OF TAPE

ASTP (USSR) MISSION SR103/1
Time: 15:20 CDT, 80:00 GET
7/18/75

CC-M Soyuz, Moscow. Soyuz, Moscow. Soyuz 2, Moscow. Read you poorly.

SFE Same here. It's getting better now. How do you read me? Moscow, this is Soyuz.

CC-M Soyuz, read you very well.

SFE The situation aboard is as follows. We've just completed the experiment Microbial Flora Sampling. Hatch 4 is open. Final 4th transfer activities.

CC-M Roger. Will you be able to write down a message on the check of hatch pressure integrity?

USSR What did you say?

CC-M Write down a radiogram about how to check hatch pressure integrity.

USSR Is that for the future?

CC-M No, right now. The final - - At the end of the transfer.

USSR The final - - at the end of the 4th transfer.

CC-M Yes, yes. Are you ready?

USSR Go ahead. I'm ready.

CC-M Pressure integrity check should be conducted in 2 stages. First, for 6 minutes, the norm is 10 mm in 6 minutes. Re-check in after 20 minutes. The norm is 1 mm in 6 minutes.

USSR You're saying that after 20 minutes the norm is 1 mm in how long?

CC-M In 6 minutes. After the re-check inform the Apollo of pressure integrity. If the pressure integrity is okay, close all valves and cap them.

USSR All right. So the first stage, the norm is 10 in 6 minutes; second stage - after 20 minutes the norm is 1 mm in 6 minutes. And the third?

CC-M That's it. After the re-check inform Apollo of the results and if the pressure integrity is okay close all the valves and cap them.

USSR So, let me specify it once again. Do you hear me?

CC-M Yes, we do.

USSR Two stages. First, 6 minutes - the norm is 10 in 6 minutes; second stage - after 20 minutes the norm is 1 mm in 6 mm. If everything's fine, inform Apollo of the hatch pressure integrity and mount the caps.

CC-M And the valves.

USSR And the valves, naturally.

CC-M Yes, 10 mm in 6 minutes on the first stage. And there's another thing. Soyuz, during your dinner from 00:54 to 01:09, (Garble) want to talk to you.

USSR Roger. At what time?

CC-M 00:54 to 01:09.

USSR 00:54 to 01:09 (garble).

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Time: 15:20 CDT, 80:00 GET
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CC-M You copy correctly. On the short-wave simplex. Please
activate the short-wave simplex receiver prior to that, and the short-wave
transmitter 2, and stand by. We'll be listening to you.

USSR O.K. Short-wave simplex receiver and short-wave transmitter 2.

CC-M Quite correct.

USSR Okay, we'll be ready. Have you got anything else?

CC-M Yes. After dinner go to bed. You can take a Phinebud pill.

USSR Say what?

CC-M Phinebud pill. The same thing you've already taken.

USSR We haven't.

CC-M You'll have a busy day tomorrow.

USSR O.K. Roger.

CC-M We recommend that you take 2 Phinebud pills each.

USSR Roger. Two Phinebud pills.

CC-M Two each.

USSR Our sleep is sound enough. Wish it were longer. We could
use more sleep. We just don't have enough time.

CC-M Roger.

USSR Today we have been rushing things and still have only 5 hours
to sleep, including the time we've already slept.

CC-M Yes, you've had a very difficult day today. How do you feel,
Soyuz?

USSR Pretty good.

CC-M Soyuz, our next AOS is from 00:53 to 01:00 through KYG.

END OF TAPE

ASTP (USSR) MISSION SR104/1
Time: 15:55 CDT, 80:35 GET
7/18/75

KIO This is MCC-M. Soyuz GET is 80:35. MCC-M shows Moscow time to be 23:56. The Soyuz and Apollo spacecraft are in docked configuration. And the Soyuz spacecraft is completing its 55th orbit of orbital flight. According to the data of the radio-trajectory measurements the maximum altitude of the Soviet spacecraft from the earth's surface is 224 km. The minimum altitude is 220 km. The inclination of the orbit along the equatorial axis 51.78°. According to given telemetry information and crew reports the cosmonauts and astronauts are feeling well. The life support systems are maintaining normal orbital conditions on both spacecraft. At the present time communications with the spacecraft are being carried out in a dark portion of the Earth, in the coverage zone of the Tananarive, Madagascar Island tracking station. The fourth and the final crew transfer between spacecraft is continuing. The Soyuz Commander Alexey Leonov, Apollo Commander Thomas Stafford, Flight Engineer Kubasov and the Docking Module Pilot Vance Brand (Sic) are located on the Soyuz spacecraft. The Apollo commander and the docking module pilot are returning to their spacecraft. In the course of the joint activities work was carried out on the joint Soviet American experiment, Microbial Exchange experiment AS-2. And its goal is the study of the mechanism of transmission of those micro-organisms that are carriers of pathogenic organisms. This microbial transmission mechanism is the basis of so-called cross infection which, at the present, is the subject of serious study. It is believed that cross infection is the basis of infectious diseases affecting the crew during flight. The remaining objectives of the experiment - experiment explaining the conditions and nature of microbial exchange - will be reached by studying the qualitative and quantitative composition of microbes which live on the cosmonaut skin and mucous membranes. Such studies have already begun during prelaunch preparation. They will be continued in flight and completed after the mission. Special equipment will be used for taking microflora samples from the crewmen's skin, storing it and returning it back to Earth. At this time samples were taken from the Apollo and Soyuz commanders onboard Soyuz spacecraft. The command module pilot took samples from Soyuz flight engineer and docking module pilot, as a part of Microbial Exchange experiment AS-2. The crew stowed the experiment equipment into a container and put the container in its proper place onboard the spacecraft. Mission Control Center, Moscow.

KIO The Soyuz 19 is completing its 55th revolution around the Earth. At this time the Soyuz and Apollo spacecraft are approaching the equator over the Pacific ocean. The orbital parameters for the forthcoming 56th orbit are as follows: Maximum altitude - 224.78 km; minimum altitude - 220.23 km; Orbital period - 88.88 minutes; Orbital inclination in relation to equatorial plane - 51.78°. At the 56th revolution the Soyuz 19 crewmembers, Alexey Leonov and Valeriy Kubasov, will implement the following program. At this time they should be performing sequence of operations which are part of joint USA USSR experiment Zone-Forming Fungi experiment, and will perform a unilateral biological experiment - Microbial Growth. After completion of these operations the cosmonauts will prepare for the next AOS with Mission Control Center which is scheduled to begin in 20 minutes - as soon as the

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Apollo and Soyuz spacecraft enter the coverage range of the Cosmonaut Yuri Gagarin tracking ship. After the communication session the cosmonauts will have their supper, perform systems checks and will prepare for sleep. The rest period will begin at the end of this revolution. Mission Control Center, Moscow.

KIO This is the Soviet Mission Control Center. It is 0:45 Moscow Time. The Soyuz-19 and Apollo spacecraft are completing the 56th revolution of their flight around the Earth. Another working day of the Apollo and Soyuz crew is coming to an end. According to the flight plan, at this time the Soyuz crew should be performing a sequence of operations as a part of Zone-Forming Fungi and Microbial Growth experiments. In 6.5 minutes the Apollo and Soyuz spacecraft will enter the coverage zone of the cosmonaut Yuri Gagarin tracking ship. In this coverage range, the Soyuz 19 crew will talk to the crew of the Salyut scientific orbital station. Mission Control Center, Moscow.

KIO This is Soviet Mission Control Center. In a minute the Soyuz and Apollo spacecraft will enter the coverage zone of the tracking ship cosmonaut Yuri Gagarin.

SCDR Do you read me?
SCDR Kavkaz, Kavkas, this is Apollo. How do you read me? Over.
MCC-M Soyuz, this is Moscow. How do you read me?
MCC-M Soyuz, Soyuz this is Moscow. How do you read me?
SFE Kavkaz, Kavkas, this is Soyuz. How do you read me?
MCC-M Soyuz, Soyuz this is Moscow. How do you read me?
SFE Kavkaz, Kavkaz this is Soyuz. How do you read me?
MCC-M Soyuz, this is Moscow. How do you read me?
SFE Moscow, Moscow this is Soyuz 2, over.
MCC-M Soyuz 2, I hear you well. Soyuz 2, we wait for the report on the hatch 4 closure and integrity check.
SFE Moscow, this is Soyuz. How do you hear me?
MCC-M Excellent, and how do you read me?
SFE Read you well.
MCC-M I'm very glad to be back with you guys. (English)
Please request time of communications with Kavkaz.
SCDR In simplex VHF mode. They still don't answer us.
MCC-M We await your report on the status of Hatch 4, Alexey that is more important now.
SCDR Valeriy will tell you.
SFE Hatch 4 is closed, the integrity check was completed for the first 6 minutes there was a pressure drop. The drop was to 94 mm for the first minute of pressure drop. In the first 6 minutes the pressure rose 1 mm. 20 minutes later we again monitored the pressure for 6 minutes. There were no changes in pressure. How do you read me, over?
MCC-M Roger.
SCDR Moscow, this is Soyuz, we have a question. Please explain how do the hooks operate in this position, freely or tightly.
MCC-M I understood your question. I will give you the answer.
In what position are your caps on the valves?
SFE Which caps? On valves?
MCC-M On valves. Yes, yes.
SFE Closed, closed. Apollo is getting ready to dump the pressure on tunnel 2 to zero.
MCC-M I read you. Soyuz 1, here is the answer to your question. The hooks may be loose. How do you read me?

ASTP (USSR) MISSION SR104/3
Time: 15:55 CDT, 80:35 GET
7/18/75

SCDR They may be loose, alright then everything is normal
then, the hooks were loose.
MCC-M Did you give permission to dump the pressure?
SCDR Yes, we did give permission as Kubasov told you. As
for integrity check - it was done in two stages and everything is normal.
MCC-M Take an unformatted radiogram.
SFE Apollo, this is Soyuz.
MCC-M Alexey, how do you read me?
SCDR Just one minute.
MCC-M We have one minute.
SCDR I am ready.
MCC-M Number 55 unformatted. Communications with the ground
during astronaut's rest period should be done according to page 62-85.
SCDR Communication with the ground during astronaut's rest
period should be done according to page 62-85.
MCC-M Confirmed.
MCC-M AOS through Orroral will come at 1:46 - 1:53.
MCC-M Kavkaz is calling you constantly. Try again to communicate
with them.
SCDR Kavkaz, Kavkaz, this is Soyuz. How do you read me, over?

END OF TAPE